Agricultural Residues for Production of Bioenergy and Organic Fertilizers

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World Bank Agricultural Research and Extension Training (ARET) Project

- **Aim of the Project:**
  To demonstrating and disseminate good agricultural practices and technologies for animal waste management, soil fertilization, and erosion control, as well as river and ground water quality monitoring

- **Total budget:** 7.85 million USD

- **Period of implementation:** 2001-2007

- **Coverage:** 154 villages, over 800 farm households, and 1,058 ha of agricultural land

The adoption of biogas digesters within the project was used as a specific measure for on-farm nutrient management and promotion of efficient manure management
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BIOGAS PRODUCTION

World Bank Agricultural Research and Extension Training (ARET) Project

- Total number of biogas digesters installed within the project: 272
- Geographical coverage: mainly in western Georgia, covering 56 villages

- Additional number of biogas digesters was installed:
  - with support of other donors: 80
  - with co-funding provided by the regional government in Achara (Western Georgia): 60

- Capacity of biogas digesters installed:
  - Volume: 6 m³
  - Annual production of biomass: 700-800 m³ (14-20 tons) per farm
  - Reduction of fuelwood consumption: from 15 to 7 m³ per year
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BIOGAS PRODUCTION

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- Benefits from biogas digesters installed:
  - Reduction of non-point source pollution from improper manure storage
  - Production of organic fertilizers as a byproduct of biogas digestion
  - Alternative source of energy to replace fossil fuels and fire wood
BIO-COMPOSTING

South Caucasus Compost Project

Aim of the Project:
To evaluate existing resources of biodegradable waste used for bio-composting and to assess the quality of compost produced from biodegradable household waste as organic fertilizer using field experiments

- **Period of implementation:** 2009-2012
- **Geographical coverage:** Marneuli (town in Eastern Georgia)
- **Project partners:** University of Kassel, Germany, Agricultural University of Georgia, Agricultural University of Armenia, Agricultural university of Azerbaijan
- **Financial support provided by:** Johannes Fehr GmbH & Co. KG, Germany
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BIO-COMPOSTING

South Caucasus Compost Project

Household waste analysis
Marneuli 2010 / 2011 in weight %

- Paper, cardboard, printed matter: 47%
- Glas: 20%
- Plastic: 7%
- Metal: 6%
- PPK: 9%
- Organic: 10%
- Other waste (residual): 1%
- Amount of the waste < 10 mm: 0%
BIO-COMPOSTING

Bio-composting plant in Marneuli
Established: 2012 (based on the results of South Caucasus Compost Project)
Funded by: the Government of Georgia
Production capacity: 20,000 tonnes per year
BIO-COMPOSTING

Compost Application

Landscaping/ Landscape conservation
  landscape gardening
  land restoration (e.g. landfill coverage, mining fields)

Agriculture
  specialized cultivation (e.g. winegrowing, fruit-growing)
  arable farming

Forestry
  afforestation of windbreakage areas and degraded soils
  tree nurseries

Horticulture
  amateur gardening (substitution for peat)
Thank you very much for your attention!

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